WHAT IS CLAIMED IS:

1. An image forming apparatus including an
application for performing processes on image forming,
and a system service for performing processes of a
system side of the image forming apparatus on the basis
of a request by using an API from the application, the
image forming apparatus comprising:

an obtaining part for obtaining version
information of APIs used by the application for the
system service, and version information of APIs of the
system service;

a comparing part for comparing, API by API,
versions of the APIs used by the application with
versions of the APIs of the system service.

2. The image forming apparatus as claimed in
claim 1, the image forming apparatus further comprising
a part for comparing a version of a set of the APIs
used by the application with a version of a set of APIs
of the system service,

wherein the image forming apparatus performs comparison by the comparing part only when the versions of the sets of the APIs are different.

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3. The image forming apparatus as claimed in claim 1, wherein an executive program of the

10 application includes the version information of the APIs used by the application, and

the obtaining part obtains the version information of the APIs used by the application from the application.

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4. The image forming apparatus as claimed in

20 claim 3, wherein the image forming apparatus tentatively launches the application for obtaining the version information from the application.

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5. The image forming apparatus as claimed in claim 3, wherein the system service includes a plurality of system service modules,

5   the application includes version information of APIs used by the application for each of the system service modules,

when the obtaining part obtains version information of APIs corresponding to a system service 10 module from the application, the obtaining part obtains version information of APIs of the system service module from the system service module.

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6. The image forming apparatus as claimed in claim 1, the image forming apparatus comprising a file storing the version information of the APIs used by the 20 application,

wherein the obtaining part obtains the version information of the APIs used by the application from the file.

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7. The image forming apparatus as claimed in claim 1, wherein, when the comparing part compares the

5 versions before the application is installed,

the image forming apparatus displays on an operation panel information indicating that the application can be installed if all versions of the APIs used by the application are the same as versions

10 of corresponding APIs of the system service.

15 8. The image forming apparatus as claimed in claim 1, the image forming apparatus comprising:

control services for controlling hardware resources of the image forming apparatus, and

a virtual application service that operates

20 as a client process for at least a control service, and operates as a server process for the application,

wherein the system service includes at least a control service that receives a request by using an API from the application, and the virtual application

25 service.

5   9. The image forming apparatus as claimed in
claim 8, wherein the virtual application service
includes the obtaining part and the comparing part.

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       10. An API version check method performed by
an image forming apparatus including an application for
performing processes on image forming, and a system
15   service for performing processes of a system side of
the image forming apparatus on the basis of a request
by using an API from the application, the method
comprising:
       an obtaining step of obtaining version
20   information of APIs used by the application for the
system service, and version information of APIs of the
system service;
       a comparing step of comparing, API by API,
versions of the APIs used by the application with
25   versions of the APIs of the system service.

5   11. The method as claimed in claim 10, the
method further comprising a step of comparing a version
of a set of the APIs used by the application with a
version of a set of APIs of the system service,

        wherein the image forming apparatus performs
10   comparison only when the versions of the sets of the
APIs are different.

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        12. The method as claimed in claim 10,
wherein an executive program of the application
includes the version information of the APIs used by
the application, and
20   wherein the version information of the APIs
used by the application is obtained from the
application.

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13. The method as claimed in claim 12, wherein the image forming apparatus tentatively launches the application for obtaining the version

5   information from the application.

10   14. The method as claimed in claim 12, wherein the system service includes a plurality of system service modules,

the application includes version information of APIs used by the application for each of the system

15   service modules,

the method comprising the steps of:

obtaining version information of APIs corresponding to a system service module from the application, and

20   obtaining version information of APIs of the system service module from the system service module.

25

15. The method as claimed in claim 10, the image forming apparatus comprising a file storing the version information of the APIs used by the application,

wherein the version information of the APIs

5 used by the application is obtained from the file.

10 16. The method as claimed in claim 10, wherein, when the versions are compared before the application is installed,

the image forming apparatus displays on an operation panel information indicating that the

15 application can be installed if all versions of the APIs used by the application are the same as versions of corresponding APIs of the system service.

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17. The method as claimed in claim 10, the image forming apparatus comprising:

control services for controlling hardware

25 resources of the image forming apparatus, and

a virtual application service that operates as a client process for at least a control service, and operates as a server process for the application,

wherein the system service includes at least

5   a control service that receives a request by using an API from the application, and the virtual application service.

10

18. The method as claimed in claim 17, wherein the virtual application service performs the obtaining step and the comparing step.

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19. A computer program for causing an image

20   forming apparatus to execute a version check process, wherein the image forming apparatus includes an application for performing processes on image forming, and a system service for performing processes of a system side of the image forming apparatus on the basis

25   of a request by using an API from the application, the

computer program comprising:

obtaining program code means for obtaining version information of APIs used by the application for the system service, and version information of APIs of

5 the system service;

comparing program code means for comparing, API by API, versions of the APIs used by the application with versions of the APIs of the system service.

10

20. The computer program as claimed in claim

15 19, the computer program further comprising:

program code means for comparing a version of a set of the APIs used by the application with a version of a set of APIs of the system service,

wherein the comparing program code means

20 performs comparison only when the versions of the sets of the APIs are different.

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21. The computer program as claimed in claim 19, wherein an executive program of the application includes the version information of the APIs used by the application, and

5   the obtaining program code means obtains the version information of the APIs used by the application from the application.

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22. The computer program as claimed in claim 19, the image forming apparatus comprising a file storing the version information of the APIs used by the

15 application,

wherein the obtaining program code means obtains the version information of the APIs used by the application from the file.

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23. The computer program as claimed in claim 19, wherein, when the comparing program code means

25 compares the versions before the application is

installed,

the computer program further includes program code means for causing the image forming apparatus to display on an operation panel information indicating

5 that the application can be installed if all versions of the APIs used by the application are the same as versions of corresponding APIs of the system service.

10

24. A computer program executed on an image forming apparatus, wherein the image forming apparatus includes a system service for performing processes of a

15 system side of the image forming apparatus on the basis of a request from an application that performs processes on image forming, the computer program comprising:

program code means for determining whether

20 tentatively launching the application or normally launching the application on the basis of a request from the system service, and

program code means for providing information on the application to the system service by

25 communicating with the system service.

5   25. A computer readable medium storing

program code for causing an image forming apparatus to

execute a version check process, wherein the image

forming apparatus includes an application for

performing processes on image forming, and a system

10   service for performing processes of a system side of

the image forming apparatus on the basis of a request

by using an API from the application, the computer

readable medium comprising:

obtaining program code means for obtaining

15   version information of APIs used by the application for

the system service, and version information of APIs of

the system service;

comparing program code means for comparing,

API by API, versions of the APIs used by the

20   application with versions of the APIs of the system

service.

25

26. A computer readable medium storing
program code executed on an image forming apparatus,
wherein the image forming apparatus includes a system
service for performing processes of a system side of

5 the image forming apparatus on the basis of a request
from an application that performs processes on image
forming, the computer readable medium comprising:

program code means for determining whether
tentatively launching the application or normally

10 launching the application on the basis of a request
from the system service, and

program code means for providing information
on the application to the system service by
communicating with the system service.

15

27. An information processing apparatus

20 including an application, and a system service for
performing processes of a system side of the
information processing apparatus on the basis of a
request by using an API from the application, the
information processing apparatus comprising:

25 an obtaining part for obtaining version

information of APIs used by the application for the

system service, and version information of APIs of the

system service;

a comparing part for comparing, API by API,

5   versions of the APIs used by the application with

versions of the APIs of the system service.

10

28. The information processing apparatus as

claimed in claim 27, the information processing

apparatus further comprising a part for comparing a

version of a set of the APIs used by the application

15   with a version of a set of APIs of the system service,

wherein the information processing apparatus

performs comparison by the comparing part only when the

versions of the sets of the APIs are different.

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29. The information processing apparatus as

claimed in claim 27, wherein an executive program of

25   the application includes the version information of the

APIs used by the application, and

the obtaining part obtains the version
information of the APIs used by the application from
the application.

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30. The information processing apparatus as
10 claimed in claim 29, wherein the information processing
apparatus tentatively launches the application for
obtaining the version information from the application.

15

31. The information processing apparatus as
claimed in claim 29, wherein the system service
includes a plurality of system service modules,
20   the application includes version information
of APIs used by the application for each of the system
service modules,
when the obtaining part obtains version
information of APIs corresponding to a system service
25 module from the application, the obtaining part obtains

version information of APIs of the system service

module from the system service module.

5

　　　32. The information processing apparatus as

claimed in claim 27, the information processing

apparatus comprising a file storing the version

10　　information of the APIs used by the application,

　　　wherein the obtaining part obtains the

version information of the APIs used by the application

from the file.

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　　　33. The information processing apparatus as

claimed in claim 27, wherein, when the comparing part

20　　compares the versions before the application is

installed,

　　　the information processing apparatus displays

on an operation panel information indicating that the

application can be installed if all versions of the

25　　APIs used by the application are the same as versions

of corresponding APIs of the system service.

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34. The information processing apparatus as claimed in claim 27, the information processing apparatus comprising:

control services for controlling hardware

10　resources of the information processing apparatus, and

a virtual application service that operates as a client process for at least a control service, and operates as a server process for the application,

wherein the system service includes at least

15　a control service that receives a request by using an API from the application, and the virtual application service.

20

35. The information processing apparatus as claimed in claim 34, wherein the virtual application service includes the obtaining part and the comparing

25　part.

5   36. An API version check method performed by

an information processing apparatus including an

application, and a system service for performing

processes of a system side of the information

processing apparatus on the basis of a request by using

10 an API from the application, the method comprising:

    an obtaining step of obtaining version

information of APIs used by the application for the

system service, and version information of APIs of the

system service;

15   a comparing step of comparing, API by API,

versions of the APIs used by the application with

versions of the APIs of the system service.

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    37. The method as claimed in claim 36, the

method further comprising a step of comparing a version

of a set of the APIs used by the application with a

25 version of a set of APIs of the system service,

wherein the information processing apparatus performs comparison only when the versions of the sets of the APIs are different.

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38. The method as claimed in claim 36, wherein an executive program of the application

10 includes the version information of the APIs used by the application, and

wherein the version information of the APIs used by the application is obtained from the application.

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39. The method as claimed in claim 38,

20 wherein the information processing apparatus tentatively launches the application for obtaining the version information from the application.

25

40. The method as claimed in claim 38, wherein the system service includes a plurality of system service modules,

5   the application includes version information of APIs used by the application for each of the system service modules,

the method comprising the steps of:

obtaining version information of APIs

10 corresponding to a system service module from the application, and

obtaining version information of APIs of the system service module from the system service module.

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41. The method as claimed in claim 36, the information processing apparatus comprising a file

20 storing the version information of the APIs used by the application,

wherein the version information of the APIs used by the application is obtained from the file.

25

42. The method as claimed in claim 36, wherein, when the versions are compared before the

5   application is installed,

the information processing apparatus displays on an operation panel information indicating that the application can be installed if all versions of the APIs used by the application are the same as versions

10   of corresponding APIs of the system service.

15   43. The method as claimed in claim 36, the information processing apparatus comprising:

control services for controlling hardware resources of the information processing apparatus, and

a virtual application service that operates

20   as a client process for at least a control service, and operates as a server process for the application,

wherein the system service includes at least a control service that receives a request by using an API from the application, and the virtual application

25   service.

5   44. The method as claimed in claim 43,

wherein the virtual application service performs the

obtaining step and the comparing step.

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        45. A computer program for causing an

information processing apparatus to execute a version

check process, wherein the information processing

15 apparatus includes an application, and a system service

for performing processes of a system side of the

information processing apparatus on the basis of a

request by using an API from the application, the

computer program comprising:

20   obtaining program code means for obtaining

version information of APIs used by the application for

the system service, and version information of APIs of

the system service;

        comparing program code means for comparing,

25 API by API, versions of the APIs used by the

application with versions of the APIs of the system

service.

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46. The computer program as claimed in claim

45, the computer program further comprising:

program code means for comparing a version of

10   a set of the APIs used by the application with a

version of a set of APIs of the system service,

wherein the comparing program code means

performs comparison only when the versions of the sets

of the APIs are different.

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47. The computer program as claimed in claim

20   45, wherein an executive program of the application

includes the version information of the APIs used by

the application, and

the obtaining program code means obtains the

version information of the APIs used by the application

25   from the application.

5   48. The computer program as claimed in claim

45, the information processing apparatus comprising a

file storing the version information of the APIs used

by the application,

          wherein the obtaining program code means

10   obtains the version information of the APIs used by the

application from the file.

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          49. The computer program as claimed in claim

45, wherein, when the comparing program code means

compares the versions before the application is

installed,

20   the computer program further includes program

code means for causing the information processing

apparatus to display on an operation panel information

indicating that the application can be installed if all

versions of the APIs used by the application are the

25   same as versions of corresponding APIs of the system

service.

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50. A computer program executed on an
information processing apparatus, wherein the
information processing apparatus includes a system
service for performing processes of a system side of
10 the information processing apparatus on the basis of a
request from an application, the computer program
comprising:

program code means for determining whether
tentatively launching the application or normally
15 launching the application on the basis of a request
from the system service, and

program code means for providing information
on the application to the system service by
communicating with the system service.

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51. A computer readable medium storing
25 program code for causing an information processing

apparatus to execute a version check process, wherein

the information processing apparatus includes an

application for performing processes on image forming,

and a system service for performing processes of a

5   system side of the information processing apparatus on

the basis of a request by using an API from the

application, the computer readable medium comprising:

obtaining program code means for obtaining

version information of APIs used by the application for

10   the system service, and version information of APIs of

the system service;

comparing program code means for comparing,

API by API, versions of the APIs used by the

application with versions of the APIs of the system

15   service.

20   52. A computer readable medium storing

program code executed on an information processing

apparatus, wherein the information processing apparatus

includes a system service for performing processes of a

system side of the information processing apparatus on

25   the basis of a request from an application that

performs processes on image forming, the computer

readable medium comprising:

      program code means for determining whether

tentatively launching the application or normally

5   launching the application on the basis of a request

from the system service, and

      program code means for providing information

on the application to the system service by

communicating with the system service.

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